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Photograph by Herford, Tynes Cowling

AMONG KASHMIR'S LIQUID ASSETS ARE ITS FLOATING FARMS

In the idyllic Vale of Kashmir, famous for the Mogul's pleasure garden of Shalimar, people too poor to rent land must live on what they can reclaim from the water. Dredging soil from the lake bottom with long tongs, they make big mud-clumps with reeds and twigs to bind the soil together, and fasten the clumps to a flimsy raft. Seeds pushed into the mud-clumps get moisture from the water beneath, and the tiny floating garden patch yields a few cucumbers, tomatoes, melons, and dwarf eggplants. Many Kashmiri are lifelong water-dwellers, living in houseboats and eating from such gardens tied to their boats (Bulletin No. 4).

HOW TEACHERS MAY OBTAIN THE BULLETINS

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"Stilted" Lagunillas: Its Birth and Death Due to Oil

AN OIL town destroyed by oil figured in last month's tragedy reported from Venezuela. Lagunillas, inhabited by workers in the Maracaibo oil fields, was built on stilts over the oil-filmed waters of Lake Maracaibo. When oil on the lake surface caught fire, the town, too, was burned; and burning floating oil cut off escape for many of its inhabitants.

Lagunillas overlapped the eastern shore of the lake about 36 miles southeast of the port of Maracaibo, the second largest city in Venezuela, with a population of about 85,000.

Lake Maracaibo, the largest body of fresh water in South America, has an area of almost 5,000 square miles. It is connected with the Gulf of Venezuela by a narrow strait of shoal water about 40 miles long. Oil is shipped from the lake area in shallow-draft tank steamers that can cross the 11-foot bar at the mouth.

Stilts Protect Towns from Malaria

Building towns on stilts, like Lagunillas, long has been a common practice along the shores of Lake Maracaibo. The lake is surrounded by a wide band of marsh land, covering an area about half the size of the lake itself. Malaria is prevalent in the marsh zone.

Construction of homes on stilts over the water and beyond the marginal marshes helps the natives to avoid mosquitoes and other insects. Boardwalks link some of the houses, but most are accessible only by canoe.

The native "stilt" school of architecture, which enabled Indians to evade malaria-bearing insects of the lake shore, has now been abandoned by new towns built according to modern engineering principles. European and American members of the Lagunillas oil colony live in a separate town made healthful by up to date drainage and mosquito protection.

Oil Wells in 50 Feet of Water

This region of Venezuela was one of the earliest visited by white men. Lake Maracaibo was discovered by Alonso de Ojeda, in 1499. The name of Venezuela, or "Little Venice," came from a small settlement so named near the mouth of the lake. The early explorers were intrigued by the Indians' pile-dwellings on the lakeshore. European settlers who followed copied this type of construction.

Venezuela ranks third in world petroleum production. Some 70 per cent of its oil comes from the Lake Maracaibo region. The Lagunillas area is one of the more recent developments in the Venezuela oil industry. About 1,200 wells have been drilled there, including a number sunk in the lake itself, some in 50 feet of water (illustration, next page). Much of the oil output is controlled by American oil companies.

The surrounding lowlands are fertile and offer large agricultural returns, but the natives have largely withdrawn from farming to work in the oil fields. Oil prosperity brought high prices resulting from lessened crop production.

Note: Additional photographs and descriptions of the Lake Maracaibo region are found in "I Kept House in a Jungle," *National Geographic Magazine*, January, 1939; "Bonds Between the Americas," December, 1937; and "How Latin America Looks from the Air," October, 1927.

See also in the GEOGRAPHIC NEWS BULLETINS: "Venezuela, Land of Oil, Coffee, Cattle, Sugar, and Pearls," January 13, 1936.

Bulletin No. 1, December 4, 1939.

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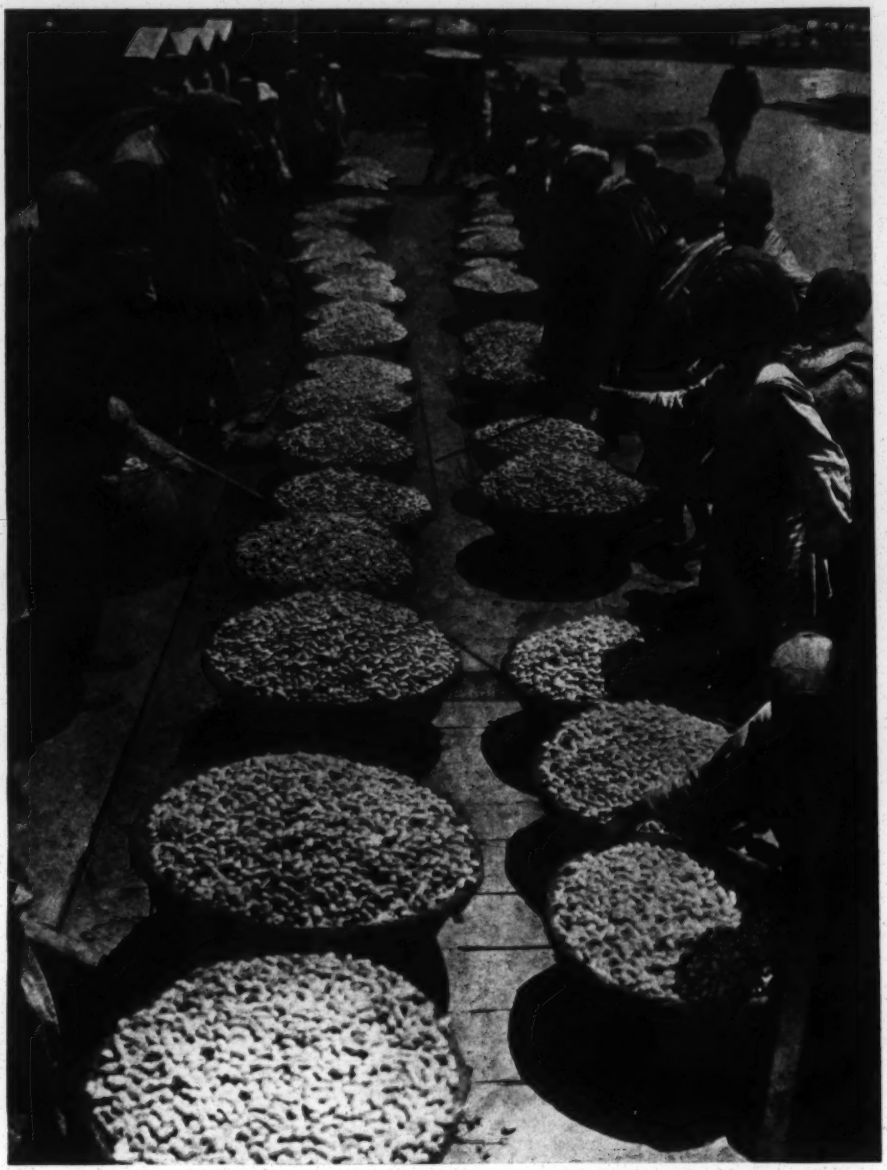

Photograph by Herford Tynes Cowling

FOR FIVE CENTURIES KASHMIR HAS PRODUCED SILK BY THE BUSHEL

Next to farming, the chief occupation of the Indian province of Kashmir is silk culture. The delicate silk worm is fed and cared for during weeks of rapid growth in the homes of the Kashmiri, until the cocoon of tightly wrapped natural silk is spun. Then each householder collects his crop of cocoons, shading from butter-yellow to creamy ivory, and sells it at the central silk mill in Srinagar. The baskets are weighed, and the grower receives pay by the pound. Machinery in the silk mill unwinds the delicate thread of the cocoon and loops it into skeins for English factories to manufacture into textiles (Bulletin No. 4).

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Enlarged Lithuania Recovers Its Lost Capital

THE city which Grand Duke Gediminas built in 1323 A.D. as Lithuania's capital —Vilnius (also Vilna or Wilno)—"came home" in October, and now the small Baltic country is counting the people and square miles that came with it.

The restored territory rounds out the realm of one of the most distinctive of Europe's family of nations. The quiet Baltic land, isolated by stretches of forest and swamp, was the last in Europe to move its religious rites from a pagan oak grove, with sacred fire attended by vestal virgins, into a church. While medieval Europe was burning heretics, the Baltic land of the White Knight was the last stronghold of religious liberty.

The people still preserve a strange speech so ancient that scholars study it for the parent tongue which other Europeans spoke and forgot millenniums ago—possibly the closest living relative to the dead language of Sanskrit.

Chaucer's Chivalrous Knight Fought Lithuania's Battles

The strip of some 2,700 square miles pieced on to the country's eastern border came from Poland by courtesy of the Soviet Union. The Lithuanian-Russian peace treaty of 1920, which granted Lithuania its freedom after 125 years of Russian rule, gave the small new nation its historic capital of Vilnius and a frontier with Russia. Polish forces, however, captured the city before the young government had time to do more than make its declaration of independence in the 600-year-old capital. The Soviet Union, upon occupying eastern Poland, handed over to Lithuania some of the land pledged two decades ago, chiefly forested hills and lakes. It includes a railroad through Vilnius from Leningrad to western Europe.

The new Lithuania has an estimated area of 23,300 square miles. Its population, some 2,900,000, is almost equal to that of its Baltic neighbors, Latvia and Estonia, combined. The restored Vilnius becomes the largest city, with about twice the population of the provisional capital, Kaunas.

When medieval Lithuania was attacked by Teutonic Knights who spread Christianity with a sword, they were defeated at the crucial battle of Tannenberg by the country's 15th century George Washington, Vytautas the Great. His power reached from the Baltic across Europe to the Black Sea. The English poet Chaucer included Lietuva (the native's name for Lithuania) in the list of battlefields on which his dignified Knight fought before making a pilgrimage to Canterbury. A Lithuanian Grand Duke, enamored of the 15-year-old Queen Jadwiga of Poland, married the girl and drew his country into Poland's orbit.

Flax, Amber, and Linseed Oil Are Specialties

Under Russian Tsars, generations of Lithuanians never saw their country's name on the map; it was merely the "Northwestern Provinces." Even the language was banned from print for forty years. One of the nation's leading poets, Mickiewicz, wrote in Polish. The artist Ciurlionis, who expressed his country's feelings in music and painting without the need of words, became a national hero.

The people preserved their traditions in folk song and folk art, handing down thousands of unwritten songs known as *dainos*. Stories from the days of their nature-worship told of the sun, God's daughter, and the moon, her husband, who stayed out late at night and flirted with the morning star. Rainbows were sashes of a goddess. The tawny amber which washed up on their Baltic shores was explained as fragments of a fairy castle built under the sea by a mermaid queen.

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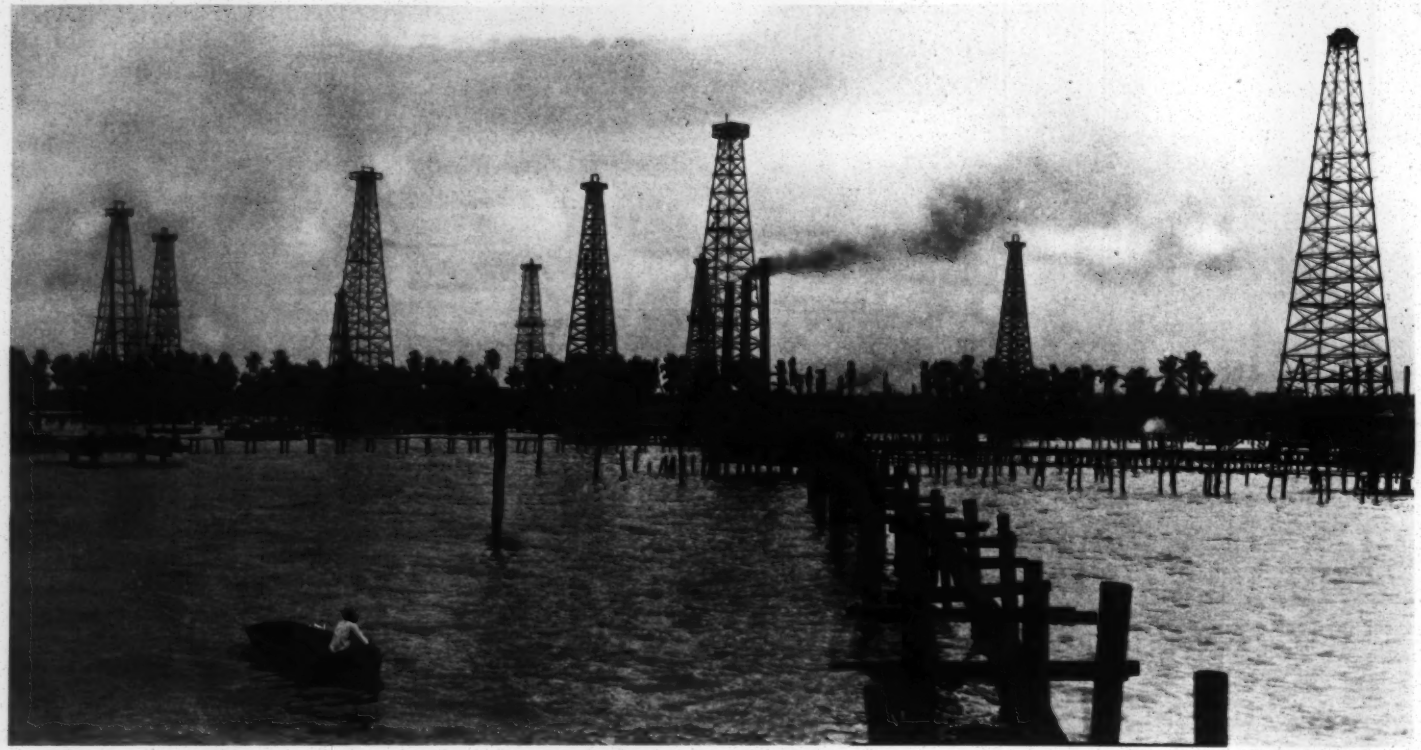

Photograph by Philip D. Gendreau

IN VENEZUELA, VILLAGES AND DERRICKS CROWD INTO THE WATER IN SEARCH OF OIL

Explorers found Indians living in houses on stilts over water, paddling down their liquid streets in canoes; and so they named the region "Little Venice"—Venezuela. The native architecture proved handy to oil prospectors, who found underground pools of petroleum beneath Lake Maracaibo. Derricks, engines, and other equipment for oil wells were placed on stilts above the lake's surface, adding a maze of steel frames and smokestacks to the Venezuelan jungle of palms. Maracaibo, the port which serves the Lake basin, ships about 150 million barrels of oil a year, most of it to England.

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Transferred Ships Under Hemisphere's Youngest Flag

IN THE midst of debate concerning the transfer of United States passenger ships to Panama registry, news dispatches told of an American oil tanker sailing from Boston under the Panamanian flag. This vessel, however, had been transferred in September, nearly two months before the neutrality legislation barring Uncle Sam's ships from war zones.

There are already about 40 vessels owned by American lines and flying Panama's flag. Twenty-two of these, with a tonnage of 142,543, were shifted between October, 1938, and October, 1939.

In this exchange of flags for ships of U. S. registry, the banner of the oldest republic in the Western Hemisphere is replaced by that of the youngest.

Red and Blue Stars on White Field

On December 20, 1903, Panama, as the newest independent nation of the West, formally adopted her present national flag. It is a banner divided into quarters, two white, one red, and one blue. On the two white sections are large five-pointed stars, blue in the first quarter, red in the fourth.

The present simple and easily identified flag was designed by Manuel Amador, Jr., son of Panama's first President, Dr. Manuel Amador. It was made by his mother, Panama's Betsy Ross, at the home of his uncle, Señor de la Ossa, who wrote the republic's national anthem.

A little over a month before its formal adoption, this flag was flown at the headquarters of the revolutionists who brought about the separation of Panama from Colombia. Its red and azure squares on a white background were chosen to represent the harmony of the two political parties, Conservative and Liberal.

Today, in Panama City, capital of the republic, a third party has joined the original two, as indicated by a sign over a water-front building near the President's palace. The sign reads, "Headquarters of the National Revolutionary, Liberal, and Conservative Parties."

Panama Flag Flown on U. S. Holidays

In addition to Panama's own national holidays, such as Secession-from-Colombia Day, November 3, and the birthday of the Latin Liberator, Simón Bolívar, on July 24, official dates on which the Panamanian flag is flown include the birthday of George Washington, Uncle Sam's Fourth of July, and Thanksgiving Day, as well as the anniversary of France's Fall of the Bastille, July 14.

In all, under Panama's red and blue stars, more than 150 ocean-going ships furrow the Seven Seas. Two-thirds of these have foreign owners, comprising the United States, Norway, Spain, Great Britain, and Germany. Norway in 1936 had 19 vessels flying the Panamanian flag.

Among the world's shipping corporations, transfer of registry is a common practice, chiefly for the purpose of reducing operating costs, and to avoid various labor and navigation restrictions. The United States, for example, within the period of October 26, 1938, to October 25, 1939, transferred 88 ships to foreign flags, ranging from Brazil's to Yugoslavia's. Next to Panama registrations during this time, changes to Canada and Britain ranked second and third.

At almost every meeting of the U. S. Maritime Commission, which passes on application for transfer of registry, some action in this field takes place. In the two weeks' period following October 25, 1939, 18 additional United States ships

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The skill of folk artists at wood carving and handicraft inspired the proverb: "If a Lithuanian rides into the forest on a horse, he will ride out in a coach." The forests of the lake-dotted country, once the stronghold of a nature worship similar to that of the Druids in western Europe, later supplied the modern nation with important items of export—veneers, staves, lumber, cellulose, and cardboard.

Lithuania is the most agricultural of the Baltic countries; three-fourths of the people are farmers, living in scattered country villages. Their cooperative markets make butter the chief export, with ham, bacons, and eggs on the side.

The rainy days of the Lithuanian summer make flax grow well, and the country stands fourth in world flax production. Careful farmers pull the plant by hand, soak it in the clear water of the numerous lakes and streams. Women in farmyards pound the seed from the fiber by hand, using ancient wooden implements. Lithuania's output of flaxseed and linseed oil is Europe's second largest.

Note: Additional descriptions of Lithuania will be found in "Flying Around the Baltic," *National Geographic Magazine*, June, 1938. See also in the GEOGRAPHIC NEWS BULLETINS: "Lithuania Offers Olive Branches to Germany and Poland," November 14, 1938; "Ancient Lithuania Smolders About Modern Boundaries," April 4, 1938.

Bulletin No. 2, December 4, 1939.

Photograph by Maynard Owen Williams

HEADLINES TELL THE NEWS IN MANY TONGUES IN VILNIUS

Lithuania's former outlaw newspaper, *The Dawn*, was smuggled in from Germany when the Lithuanian language was prohibited in print by Russian Tsars. *The Gazieta* in New York City preceded open publication of Lithuanian language papers in that country by 25 years. Now each of the minorities that make up 15 per cent of the population can read a newspaper in its own tongue, as indicated by this news stand in Vilnius displaying Polish, Russian, Jewish, German, and Latvian journals.

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Kashmir Enforces Beef Ban on Beef-Eating Visitors

"NO BEEF today" is always on the menu in the high Himalayan valley of Kashmir. Visitors to this popular mountain province in northern India have thought of bringing their own beef to beefless resort tables; but customs officials, acting as a special border patrol, now require all tourists to sign a statement that they are not importing fresh beef, canned beef, even a beef bouillon cube, into the province.

The beefless menu of Kashmir is a result of religious purity. Though 90 per cent of them are Moslem, the 3,500,000 Kashmiri are ruled by a small but powerful Hindu group which insists on the Hindu ban against eating beef.

The cow is sacred to Hindu rulers; if a Moslem member of the populace kills beef cattle, he is jailed for seven years. So, in Kashmir, cowhide is forbidden for all the normal uses for leather. There are neither shoes nor saddles of cowhide. The Moslem, on the other hand, because of his religious beliefs, objects to using the skin of the unclean pig.

Sacred Cow Makes Horsehide Popular

Use of horsehide is not banned, so leather workers make boots and leather-covered boxes of "dobbin" hides, without fear of punishment. Besides leather goods, native workmen make many boxes, screens, and tables handsomely carved of wood. Carvers still hold chisels with their toes and turn their lathes with a bowstring. Potters spin their wheels by hand. Gold and silversmiths, boat builders, confectioners, and other artisans continue their primitive arts, but the making of the famous cashmere shawls is almost extinct.

In the heyday of the shawl, the skilled artisans of Kashmir were paid but twelve to fifteen cents a day. They made the shawls from the imported soft down of goats. Between 1860 and 1870 the value of shawls woven in Srinagar, summer capital of Kashmir, alone amounted to about $650,000 annually.

Changes in western fashions and machine competition have nearly destroyed the industry. Shawl makers today are engaged in weaving fine carpets and embroidery work.

Silkworms Smuggled in To Found Industry

Agriculture and the production of raw silk are the chief industries of Kashmir now. Silkworm-raising was introduced in Kashmir in the 15th century. One legendary explanation is that a Chinese princess is said to have smuggled shoots of the mulberry tree containing silkworm eggs into India in the lining of her headdress (illustration, inside cover).

Farmers still use primitive methods. Rice is hulled by placing it in wooden or stone tubs and pounding it with the ends of stout wooden poles.

A novel feature of farming is the floating garden, a raft possibly 30 feet long and 10 feet wide covered with earth. Melons, cucumbers, and other produce are grown on them as they float on rivers and lakes (illustration, cover).

A mile above the sea, Kashmir is India's most popular summer resort. The province is rated one of the more backward states of India. It has fewer than 1,000 primary schools. Minnesota, of equal area but with a population two-thirds that of Kashmir, is nevertheless served by more than ten times as many elementary schools.

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were shifted to foreign registry. Many such transfers, however, are relatively unimportant in channels of world navigation, including such minor items as a gasoline yacht of 21 tons and a gasoline motorboat of seven tons.

There are only some 50 vessels of Panama corporations flying Panama's red and blue stars. Many of these, moreover, are foreign-owned. Panama is a small country with less than half a million inhabitants, and with little export trade.

Yet the estimated tonnage of ships under Panamanian registry is about equal to that of Brazil, a country a hundred times larger with eighty times the population.

In 1938, Panama imported about seventeen and a half million dollars' worth of goods, exported little more than three and a half million dollars' worth. Yet world shipping, paradoxically, is a vital factor in this country's national budget. Money (not transit fees) spent by passengers and crews passing through the Panama Canal and the annual fee which Uncle Sam pays for the land through which the Canal runs combine to add many hundreds of thousands of dollars to Panama's annual income.

Note: Additional material about Panama and the Canal will be found in "At Home on the Ocean," *National Geographic Magazine*," July, 1939; "Some Impressions of 150,000 Miles of Travel," May, 1930; "Flying the World's Longest Air-Mail Route," March, 1930; "To Bogotá and Back by Air," May, 1928; "How Latin America Looks from the Air," October, 1927.

Panama and the Panama Canal may be located on The Society's New Map of Mexico, Central America, and the West Indies, published as a supplement to the December, 1939, issue of the *National Geographic Magazine*. Unfolded copies are available from The Society's Washington, D. C., headquarters at 50c (paper) and 75c (linen).

Bulletin No. 3, December 4, 1939.

Photograph by R. S. and Edith Bauer Strout

MANY FLAGS BESIDES PANAMA'S FLY OVER THE CANAL ON PASSING BOATS

Shipping of all maritime nations passes through the Canal locks from sea to sea. The tugboat (foreground) hauls a yacht that appears dwarfed by contrast. Lacking a tug, the yacht could have been towed through by the electric locomotive on the track (right), called a "mule," after the animal which does a similar job on smaller canals.

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Fort Peck Dam To Join 60-Year Hydroelectric Power Parade

WHENEVER someone presses the button that turns on an electric light, the chances are two out of five that he is releasing electric power generated from flowing water.

The rapid growth of hydroelectric power in the United States is emphasized by news from the Fort Peck Dam in Montana, the world's largest dam built of earth. The gigantic dam itself has just been finished, but it will not be considered complete until a hydroelectric plant is installed next year.

Although serving primarily to improve navigation on the Missouri River, to irrigate farmland, and to combat floods, the Fort Peck Dam is also to be put to work at power-making, like the Boulder Dam. The electric plant on Boulder Dam is now the largest in the world, with a present capacity of 860,000 horsepower.

Pioneer Giant Water Wheel on Little Isle of Man

Water power itself is of ancient lineage. Water wheels were in use on the Nile, the Euphrates, and the Yellow River of China at least 3,000 years ago. A few old water wheels are still grinding beside rushing streams in the Blue Ridge Mountains, the Great Smokies, and elsewhere in the United States.

In 1854 the town of Laxey, on the Isle of Man in the Irish Sea, made power history with a gigantic water wheel more than 72 feet in diameter. It developed 150 horsepower. Water piped down from the hills turned the big wheel to pump water from the lead mines. It would take 5,733 such 72-foot wheels to equal Boulder Dam's present power.

Soon the United States began catching water power and converting it into electricity, or hydroelectric power. The first hydroelectric central plant in the United States was set up in a small frame building less than 20 feet square at Appleton, Wisconsin, in 1882. There now are 2,869 electric water-power plants in the United States, counting only those of 100 horsepower and more.

The turbine, successor to the ancient water wheel, had been in process of development more than 50 years—starting in Europe—when the Appleton plant was established. Improvements in turbine design have continued until today one turbine develops 1,000 times the power of the giant wheel on the Isle of Man.

Dam Is Man's Most Massive Work

Before the close of the past century, the era of hydroelectric power had begun. A plant had been erected at Oregon City in 1889, and three years later another at Ames, Colorado. A plant in California delivered power to Pomona and San Bernardino the same year. In 1892 a central plant was built at the mouth of Mill Creek Canyon in Southern California, and another at Hartford, Connecticut.

Some measure of the vastness of the United States hydroelectric industry today is indicated by the number of power dams 200 feet high and over. There are 38, ranging upwards to Boulder Dam, 727 feet high, on the Colorado River between Arizona and Nevada. Here the power house can turn factory wheels 250 miles away and light the streets of Los Angeles.

These hydroelectric plants are gigantic engineering accomplishments. The Grand Coulee Dam in Washington, now second in height, is 4,300 feet long. It is of concrete and is the most massive man-made structure in the world, having three times the volume of the largest Egyptian pyramid. The Shasta Dam, 12 miles north of Redding, California, when completed will be the second largest concrete

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Scenically, Kashmir is one of the most beautiful spots in the world, the so-called "land of nightingales and roses." To the tourist it is the fertile valley of the Jhelum River, a level plain about 80 miles long and from 20 to 25 miles wide, entirely surrounded by a deep margin of mountains, the Himalayas. These peaks feed the river and its occasional broad, lakelike expansions from their springs and snow caps.

Kashmir is accessible only through the romantic gorge of the Jhelum, or by arduous travel over the mountains.

The river with its intersecting canals is the highway of this mountain Venice, a highway for luxurious house boats. This part of Kashmir has acquired the name of "The Happy Valley"—the title which Dr. Samuel Johnson gave to the Utopia he described in his novel, *Rasselas*.

Note: See also "First Over the Roof of the World by Motor," *National Geographic Magazine*, March, 1932; "On the World's Highest Plateaus," March, 1931; "House-Boat Days in the Vale of Kashmir," October, 1929; and "Outwitting the Water Demons of Kashmir," also "A Pilgrimage to Amernath," November, 1921.

Bulletin No. 4, December 4, 1939.

Photograph by Herford Tynes Cowling

BESIDE THE SHALIMAR STANDS AN INSPIRATION FOR THE TAJ MAHAL

The Taj Mahal, which the Mogul emperor Jehan built at Agra for his favorite wife, has become one of the most famous spots in India. In building it, Jehan is supposed to have followed the example of his father, Emperor Jahangir, who also built a tribute to a favorite wife —the Persian Garden at Shalimar (above) in the northern Vale of Kashmir. Shaded terraces, flowerbeds, and fountains surround cascades of water; they make a summery landscape setting for a black marble pavilion, from which the emperor and his Nur Mahal could watch slave girls dance on marble platforms in the cascades. The ancient garden still lives in the poem from *Indian Love Lyrics:* "Pale hands I loved, Beside the Shalimar. . . ."

dam in in the world, 3,500 feet long and rising five feet higher than the Washington Monument. It will be the highest overflow dam in the world, the water from the 375-foot spillway dropping 480 feet, three times the height of Niagara Falls. Only eleven of the higher-than-200-feet power dams are east of the Mississippi. Three are in North Carolina, two each in Tennessee and Massachusetts, and one each in Vermont, Kentucky, West Virginia, and South Carolina.

The two in Tennessee are part of the 10-dam system of the Tennessee Valley development to harness the Tennessee River for navigation, flood control, and power production. Already, four TVA dams as a unit produce 560,000 horsepower.

The production of electricity by water power in the United States has almost tripled in the past 20 years, and has increased to about 40 per cent of the country's electric plant output—almost 45 billion kilowatt-hours in 1938, or nearly 60 billion horsepower. This is 400 million times the power of the water wheel that made history in the Isle of Man 85 years ago. If produced by plants burning fuel, last year's output of hydroelectric power would have required 31,608,259 tons of coal.

Note: The following issues of the *National Geographic Magazine* include photographs and text concerning power plants, development, and potentialities in the United States: "Highlights of the Volunteer State" (Tennessee), May, 1939; "Men Against the Rivers," June, 1937; "Southern California at Work," November, 1934; "By Car and Steamer Around Our Inland Sea," April, 1934; "New York—An Empire within a Republic," November, 1933; "Illinois, Crossroads of the Continent," May, 1931; "Arizona Comes of Age," January, 1929; "Trailing History Down the Big Muddy," July, 1928; and "The Great Mississippi Flood of 1927," September, 1927.

Bulletin No. 5, December 4, 1939.

Photograph by Louis R. Bostwick

WHEN THE MISSOURI STARTS A RUN ON THE BANK.

In addition to the production of hydroelectric power, the Fort Peck Dam in Montana will help equalize the two extremes which plague the Missouri River valley—too much water for the good of the soil, in floods; and not enough water, in droughts. Irrigation, from the reservoir impounded behind the dam, will remedy the waterless problem. The reservoir will also hold back the excess that makes the Big Muddy boil over in a flood, swirling over farm land along its banks and carrying away tons of fertile top soil. By undermining the bank, the river eventually captures great chunks of farm land, which fall into the water in sections up to 20 feet broad and 300 feet long, as their support is washed away. Many other big American dams do a similar work in preventing soil erosion.